

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1-43 (canceled)

1 Claim 44 (currently amended): A method of transmitting
2 data between a first device and a second device,
3 comprising the steps of:

4 providing a plurality of N separate antennas,
5 said plurality including at least a first antenna and a
6 second antenna, N being a positive integer greater than
7 one;

8 operating the first device to transmit from the
9 first antenna, a first signal including said data the
10 first signal having a carrier frequency, fc, a broadcast
11 region from the first antenna including the second
12 device;

13 operating the first device to transmit from
14 the second antenna, a second signal including said data
15 the second signal having the same carrier frequency, fc,
16 as the first signal, a broadcast region from the second
17 antenna including the second device, at least one of a
18 phase and an amplitude of the second signal varying over
19 time relative to the first signal, the combined average
20 transmitted power of the first and second signals being
21 maintained at an almost constant value over a period of
22 time during which the at least one of a phase and an
23 amplitude of the second signal is varied relative to the
24 first signal.

1 Claim 45 (original): The method of claim 44, wherein the
2 phase of the second signal varies over time relative to

3 the phase of the first signal, the method further
4 comprising the step of:

5 introducing a variation into the phase of the
6 second signal as a function of time prior to operating
7 the second antenna to transmit the second signal.

1 Claim 46 (original): The method of claim 45, further
2 comprising the step of:

3 controlling the rate at which data is
4 transmitted as part of the first signal as a function of
5 transmission channel quality information.

1 Claim 47 (original): The method of claim 45, wherein the
2 first device is a base station and the second device is a
3 mobile station.

1 Claim 48 (original): The method of claim 45, wherein the
2 first device is a mobile station and the second device is
3 a base station.

1 Claim 49 (currently amended): A method of transmitting
2 data between a first device and a second device,
3 comprising the steps of:

4 providing a plurality of N separate antennas,
5 said plurality including at least a first antenna and a
6 second antenna, N being a positive integer greater than
7 one;

8 operating the first device to transmit from the
9 first antenna, a first signal including said data the
10 first signal having a center frequency, a broadcast

11 region from the first antenna including the second
12 device;

13 operating the first device to transmit from
14 the second antenna, a second signal including said data
15 the second signal having the same center frequency as the
16 first signal, a broadcast region from the second antenna
17 including the second device, at least one of a phase and
18 an amplitude of the second signal varying over time
19 relative to the first signal, the combined average
20 transmitted power of the first and second signals being
21 maintained at an almost constant value over a period of
22 time during which the at least one of a phase and an
23 amplitude of the second signal is varied relative to the
24 first signal.

1 Claim 50 (original): The method of claim 49, further
2 comprising the steps of:

3 introducing a variation into the phase of the
4 second signal as a function of time prior to operating
5 the second antenna to transmit the second signal; and

6 controlling the rate at which data is
7 transmitted as part of the first signal as a function of
8 transmission channel quality information.

1 Claim 51 (currently amended): A communications
2 apparatus, comprising:

3 a source of data;

4 a transmitter circuit coupled to the source of
5 data for generating a plurality of data signals each data
6 signal including the same data, the plurality of data

7 signals including a first data signal and a second data
8 signal the first and second data signals differing from
9 one another as a function of time by at least one of a
10 phase and an amplitude; and

11 a plurality of antennas coupled to said
12 transmitter circuit to receive and transmit said data
13 signals in parallel, each antenna receiving and
14 transmitting one of said data signals; and

15 means for varying the relative amplitudes of
16 the first and second data signals as a function of time
17 while maintaining the combined average transmitted power
18 of the first and second data signals at an almost
19 constant value over the period in time during which the
20 relative amplitudes of the first and second data signals
21 are varied.

1 Claim 52 (original): The apparatus of claim 51,
2 wherein the transmitter circuit includes means
3 for independently varying the phase of at least one of
4 the first and second data signals as a function of time.

1 Claim 53 (original): The apparatus of claim 52, further
2 comprising:

3 a receiver for receiving communications channel
4 condition information; and

5 means for determining the rate at which data
6 should be transmitted in said first and second data
7 signals as a function of the communications channel
8 information.

1 Claim 54 (original): The apparatus of claim 52, further
2 comprising:

3 a receiver for receiving communications channel
4 condition information from a plurality of mobile stations
5 regarding the condition of a communications channel
6 associated with individual ones of said plurality of
7 mobile stations; and

8 means for scheduling transmission of data to
9 individual mobile stations as a function of the received
10 communications channel condition information.

1 Claim 55 (original): The apparatus of claim 54,
2 wherein the means for scheduling includes a
3 scheduling routine which gives preferential treatment to
4 the scheduling of data transmissions to mobile stations
5 with good communications channels as compared to mobile
6 stations with poorer communications channels.

1 Claim 56 (currently amended): ~~The apparatus of claim 55,~~
2 ~~further comprising:~~ A communications apparatus,
3 comprising:

4 a source of data;
5 a transmitter circuit coupled to the source of
6 data for generating a plurality of data signals each data
7 signal including the same data, the plurality of data
8 signals including a first data signal and a second data
9 signal the first and second data signals differing from
10 one another as a function of time by at least one of a
11 phase and an amplitude, the transmitter circuit including
12 means for independently varying the phase of at least one

13 of the first and second data signals as a function of
14 time;

15 a plurality of antennas coupled to said
16 transmitter circuit to receive and transmit said data
17 signals in parallel, each antenna receiving and
18 transmitting one of said data signals;

19 a receiver for receiving communications channel
20 condition information from a plurality of mobile stations
21 regarding the condition of a communications channel
22 associated with individual ones of said plurality of
23 mobile stations;

24 means for scheduling transmission of data to
25 individual mobile stations as a function of the received
26 communications channel condition information
27 wherein the means for scheduling includes a scheduling
28 routine which gives preferential treatment to the
29 scheduling of data transmissions to mobile stations with
30 good communications channels as compared to mobile
31 stations with poorer communications channels; and

32 means for determining the rate at which data
33 should be transmitted in said first and second data
34 signals as a function of the communications channel
35 information.

1 Claim 57 (original): The apparatus of claim 54,
2 wherein the first and second data signals have
3 the same center frequency, f_c and a wavelength W at the
4 center frequency; and

5 wherein the first and second antennas are
6 spaced at least one half the distance of the wavelength W
7 from each other.

1 Claim 58 (original): The apparatus of claim 54,
2 wherein the first and second data signals have
3 the same carrier frequency, fc and a wavelength W at the
4 carrier frequency; and

5 wherein the first and second antennas are
6 spaced at least one half the distance of the wavelength W
7 from each other.

1 Claim 59 (original): The apparatus of claim 51,
2 wherein the first and second data signals have
3 the same center frequency, fc and a wavelength W at the
4 center frequency; and

5 wherein the first and second antennas are
6 spaced at least one half the distance of the wavelength W
7 from each other.

1 Claim 60 (original): The apparatus of claim 51,
2 wherein the first and second data signals have
3 the same carrier frequency, fc and a wavelength W at the
4 carrier frequency; and

5 wherein the first and second antennas are
6 spaced at least one half the distance of the wavelength W
7 from each other.

1 Claim 61 (original): The apparatus of claim 51, further
2 comprising:

3 means for using a fixed amount of power to
4 transmit the combination of the first and second data
5 signals over time.

1 Claim 62 (currently amended): The apparatus of claim 61,
2 wherein said transmitter circuit is an OFDM signal
3 transmitter further comprising:
4 means for varying the relative amplitudes of
5 the first and second data signals as a function of time
6 while maintaining the combined average transmitted power
7 of the first and second data signals at an almost
8 constant value over the period in time during which the
9 relative amplitudes of the first and second data signals
10 are varied.

1 Claim 63 (currently amended): A communications system,
2 comprising:
3 a mobile station; and
4 a base station, the base station including
5 comprising:
6 i) a receiver for receiving
7 communications channel condition
8 information regarding the condition of a
9 first communications channel existing
10 between the base station and a mobile
11 station first device and information
12 regarding the condition of additional
13 communications channels existing between
14 the base station and a plurality of
15 additional mobile stations; and

16 ii. ii) means for determining the rate at
17 which data is transmitted to said mobile
18 station as a function of the channel
19 condition information;
20 iii) means for determining the order
21 in which the base station is to transmit
22 data to different mobile stations as a
23 function of said communication channel
24 condition information and said additional
25 communications channel condition
26 information; and
27 iv) means for introducing signal
28 variations into signals transmitted to the
29 mobile stations so that the mobile
30 stations will detect fluctuations in
31 received signal power.

1 Claim 64 (currently amended): The ~~communications system~~
2 base station of claim 63, wherein signals transmitted to
3 the mobile stations are OFDM signals further comprising:
4 a plurality of additional mobile stations, the
5 base station receiver receiving additional communications
6 channel condition information regarding the condition of
7 additional communications channels existing between the
8 base station and said additional mobile stations.

1 Claim 65 (currently amended): The base station
2 communication system of claim 64, wherein said further
3 comprising: means for determining the order in which the
4 base station is to transmit data to different mobile

5 stations as a function of said communication channel
6 condition information and said additional communications
7 channel condition information includes a scheduler
8 routine stored in a memory.

1 Claim 66 (currently amended): The ~~communication system~~
2 ~~of claim 65, wherein the base station of claim 63,~~
3 further comprising: includes:

4 at least a first and second antenna for
5 broadcasting first and second signals including the same
6 data to one of said mobile stations, the first and second
7 signals having different phases.

1 Claim 67 (currently amended): The ~~communication system~~
2 ~~of claim 65, wherein the base station further includes:~~
3 A communications system, comprising:

4 a mobile station;
5 a plurality of additional mobile stations; and
6 a base station, the base station including:
7 i) a receiver for receiving
8 communications channel condition
9 information regarding the condition of a
10 first communications channel existing
11 between the base station and the mobile
12 station and for receiving additional
13 communications channel condition
14 information regarding the condition of
15 additional communications channels
16 existing between the base station and said
17 additional mobile stations;

18 ii) means for determining the rate
19 at which data is transmitted to said
20 mobile station as a function of the
21 channel condition information;

22 iii) means for determining the order
23 in which the base station is to transmit
24 data to different mobile stations as a
25 function of said communication channel
26 condition information and said additional
27 communications channel condition
28 information; and

29 iv) at least a first and second
30 antenna for broadcasting first and second
31 signals including the same data to one of
32 said mobile stations the first and second
33 signals having different amplitudes.

1 Claim 68 (currently amended): ~~The communication system~~
2 ~~of claim 65, wherein the base station further includes:~~ A
3 communications system, comprising:
4 a mobile station;
5 a plurality of additional mobile stations; and
6 a base station, the base station including:
7 i) a receiver for receiving
8 communications channel condition
9 information regarding the condition of a
10 first communications channel existing
11 between the base station and the mobile
12 station and for receiving additional
13 communications channel condition

14 information regarding the condition of
15 additional communications channels
16 existing between the base station and said
17 additional mobile stations;
18 ii) means for determining the rate
19 at which data is transmitted to said
20 mobile station as a function of the
21 channel condition information;
22 iii) means for determining the order
23 in which the base station is to transmit
24 data to different mobile stations as a
25 function of said communication channel
26 condition information and said additional
27 communications channel condition
28 information; and
29 iv) means for introducing signal
30 variations into signals transmitted to the
31 mobile stations so that the mobile
32 stations will detect fluctuations in
33 received signal power.

1 Claim 69 (original): The communication system of claim
2 68, wherein said means for introducing signal variations
3 into signals includes a plurality of antennas for
4 transmitting the same data in parallel.

1 Claims 70-71 (canceled):